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STATUS OF *AMELANCHIER ARBOREA* (ROSACEAE) IN TEXAS

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ABSTRACT

For over 75 years, *Amelanchier arborea* has been mentioned as a natural part of the flora of Texas, apparently without satisfactory documentation. The most recent listing of the vascular plants of Texas did not include the species as being in the state. Recent literature, herbarium, and field study have resulted in the discovery and collection of the species in Newton County, thus providing conclusive evidence of the occurrence of the species in the state.

Although much has been written about *Amelanchier arborea* (F. Michx.) Fernald (Rosaceae) in Texas, the species has never been convincingly documented as part of the state's flora. Following is a summary of the important publications detailing the unusual literary history of the status of the species in Texas. Note that publications citing *A. arborea* as being in Texas have several similarities:

* records seem borrowed from earlier works,
* the stated distributions, although very general, don't always agree,
* where only trees are included, the species may have been excluded for not meeting the stated definition of a tree, and
* none cites a specimen or references a publication citing a specimen.

Cory and Parks (1937) apparently treated *Amelanchier arborea* under the name *A. canadensis* (L.) Medik., a misapplication of that name. The stated distribution of the species included ecological areas 1 and 4 of that work, where area 1 was the Timber Belt, known today as the Pineywoods, and area 4 was the Blackland Prairie, which comprised the vegetational regions currently known as the Post Oak Savannahs, Blackland Prairies, and Cross Timbers and Prairies (Gould 1962). Cory and Park's (1937) expanded definition of area 4 seems responsible for the Hatch et al. (1990) and Diggs et al. (1999) references citing *A. arborea* as occurring in today's area 4 (Blackland Prairies).

When Fernald (1941) proposed the new combination *Amelanchier arborea* (based on *Mespilus arborea* F. Michx., Hist. Arb. Amer. Sept. 3: 68, t. 11. 1810), Texas was not included as part of the distribution; he also later noted (Fernald 1950) that the westernmost known localities were in Oklahoma and Louisiana. Gould's (1962) Texas checklist did not list the species, while Correll and Johnston (1970), in the *Manual of the Vascular Plants of Texas*, noted that *Amelanchier arborea* occurs in "rich woodlands along streams, in thickets and on open wooded slopes in n.e. Tex." Johnston (1990), in a checklist updating Correll and Johnston (1970), left the entry on *Amelanchier arborea* unchanged.

The species was listed in Little (1953) as present in eastern Texas. Little defined trees as "woody plants having one erect perennial stem or trunk at least 3 inches in diameter at breast height ($4^1/_2$ feet), a more or less definitely formed crown of foliage, and a height of at least 12 feet." Little (1977) did not map the species in Texas in the *Atlas of U.S. Trees vol. 4, Minor Eastern Hardwoods*. No reason is given for the change from Little (1953), but it may be related to a lack of a specimen from Texas or failure to meet the definition of a tree.

In *A Field Guide to Texas Trees*, Simpson (1988) mentioned the following: "A*melanchier arborea* (Service-berry) at Monroe, Louisiana, is a 25-foot-tall tree. Yet the only one I have seen in the wild in Texas was scarcely 3 feet tall and flowering profusely. Seedlings grown from the Texas species for ten years remain only 3 feet tall." The essence of his statement is that *A. arborea* did occur in Texas but was not treated by him because it did not meet the definition of a tree — having a single or multiple trunk growing to 12 feet or more in height and being definitely woody. Neither a voucher specimen nor locations of the original plants grown by Simpson were mentioned.

The checklist of Hatch et al (1990) included the species as occurring in vegetational areas 1 and 4 — in this work, area 1 is the Pineywoods of east Texas, while area 4 is the Blackland Prairie, an unlikely site for *A. arborea*, indicating perhaps that the distribution was copied from Cory and Parks (1937) but without emendation of the differences between the two area 4s. In yet another Texas checklist, Jones et al. (1997) cited the species in Texas as var. *arborea*, but they did not provide distributional data. The species was included in flora of north-central Texas by Diggs et al. (1999) on the basis of the citation in Hatch et al. (1990). In Turner et al. (2003) *A. arborea* is neither mapped nor cited in the index. USDA, NRCS (2014), however, maps the species in Texas but does not include a county distribution map (as done with other Texas species). The Texas county-level maps in USDA, NRCS are apparently taken from Turner et al. (2003), which would explain a lack of a map for *A. arborea*. Finally, Kartesz (2013) does not map the species in Texas.

Kartesz (2013), however, has mapped *Amelanchier arborea* as present in two counties of southeast Oklahoma bordering Texas along the Red River and also in three parishes of Louisiana contiguous with Texas, presumably following Thomas and Allen (1998) in their Louisiana Atlas. This nearby distribution, in some instances very few miles distant from Texas, seemed indicative of the species' presence in Texas, thus our interest. Initially, but without results, the following herbaria were surveyed in an attempt to locate an existing specimen: SMU-BRIT, TEX-LL, TAMU, and TRACY.

Relocation of *Amelanchier arborea* in Texas

We successfully located several specimens of *Amelanchier arborea* and here cite two collections to document its presence in Texas. Although the plants were located and collected at the very end of the autumn (18 December) and the plants were dormant, we were able to observe and collect buds and leaves still attached — both used to confirm the identity of the species. Both of the plants from which vouchers were collected were about 2 meters tall, slender understory trees apparently similar in habit to those earlier observed by Simpson. Perhaps because of their near-leafless condition, we were able to locate only three individuals.

Voucher specimens: **Texas**. Newton County: 4.7 mi W of Mayflower Community at the jct. of Hwy R255 and Hwy 87 on Hwy R255, headwaters of Little Cow Creek at the jct. of R255, downstream 0.4 mi (site 1, 31° 3' 41.76" N, 93° 47' 45.60" W), E side of Little Cow Creek on a terrace near the edge of creek, 18 Dec 2013, *Holmes, Singhurst,* and *Loos 15979* (BAYLU); 0.6 mi downstream (south) from above location (site 2, 31° 3' 38.98" N, 93° 47' 38.40" W), 18 Dec 2013, *Holmes, Singhurst,* and *Loos 15980* (BAYLU). Figures 1, 2.

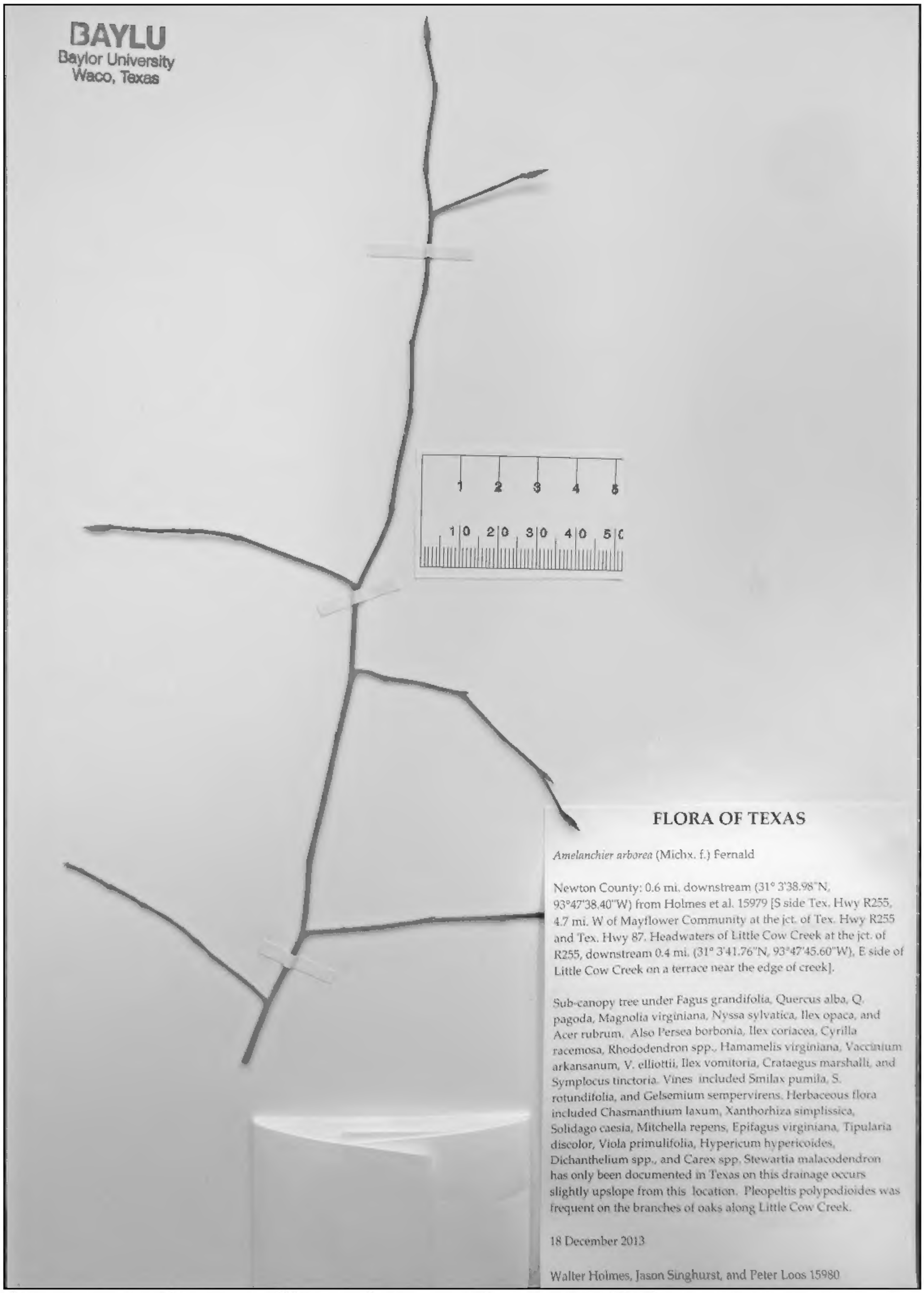
BAYLU
Baylor University
Waco, Texas
1 2 3 4 5
10 20 30 40 5(
FLORA OF TEXAS
Amelanchier arborea (Michx. f.) Fernald
Newton County: 0.6 mi. downstream (31° 3'38.98"N, 93°47'38.40"W) from Holmes et al. 15979 [S side Tex. Hwy R255, 4.7 mi. W of Mayflower Community at the jct. of Tex. Hwy R255 and Tex. Hwy 87. Headwaters of Little Cow Creek at the jct. of R255, downstream 0.4 mi. (31° 3'41.76"N, 93°47'45.60"W), E side of Little Cow Creek on a terrace near the edge of creek].
Sub-canopy tree under Fagus grandifolia, Quercus alba, Q. pagoda, Magnolia virginiana, Nyssa sylvatica, Ilex opaca, and Acer rubrum. Also Persea borbonia, Ilex coriacea, Cyrilla racemosa, Rhododendron spp., Hamamelis virginiana, Vaccinium arkansanum, V. elliottii, Ilex vomitoria, Crataegus marshalli, and Symplocus tinctoria. Vines included Smilax pumila, S. rotundifolia, and Gelsemium sempervirens. Herbaceous flora included Chasmanthium laxum, Xanthorhiza simplissica, Solidago caesia, Mitchella repens, Epifagus virginiana, Tipularia discolor, Viola primulifolia, Hypericum hypericoides, Dichanthelium spp., and Carex spp. Stewartia malacodendron has only been documented in Texas on this drainage occurs slightly upslope from this location. Pleopeltis polypodioides was frequent on the branches of oaks along Little Cow Creek.
18 December 2013
Walter Holmes, Jason Singhurst, and Peter Loos 15980

Figure 1. *Amelanchier arborea*. (*Holmes, Singhurst,* and *Loos 15980*, BAYLU).

Figure 2. *Amelanchier arborea*. Leaf from dormant plant (*Holmes, Singhurst,* and *Loos 15980*, BAYLU).

Amelanchier arborea in Texas is a subcanopy tree growing under *Fagus grandifolia, Quercus alba, Q. pagoda, Magnolia virginiana, Nyssa sylvatica, Ilex opaca*, and *Acer rubrum*. Both sites also included *Persea borbonia, Ilex coriacea, Cyrilla racemosa, Rhododendron spp., Hamamelis virginiana, Vaccinium arkansanum, V. elliottii, Ilex vomitoria, Crataegus marshalli,* and *Symplocus tinctoria*. Woody vines in the vicinity included *Smilax pumila, S. rotundifolia,* and *Gelsemium sempervirens*. Herbaceous flora included *Chasmanthium laxum, Xanthorhiza simplicissima, Solidago caesia, Mitchella repens, Epifagus virginiana, Tipularia discolor, Viola primulifolia, Hypericum hypericoides, Dichanthelium* spp., and *Carex* spp. *Stewartia malacodendron*, a rare peripheral shrub species that has only been documented in Texas on Little Cow Creek, occurs slightly upslope from the *A. arborea* populations. *Pleopeltis polypodioides*, an epiphytic fern, was also frequent on the branches of oaks along the creek.

Amelanchier arborea is the second species of the genus documented for Texas. *Amelanchier utahensis* Koehne occurs in the Guadalupe Mountains of the trans-Pecos region (see Turner et al. 2003; Correll & Johnston 1970). A third species, *A. denticulata* (Kunth) K. Koch., as treated by Correll and Johnston (1970), is now referable to *Malacomeles denticulata* (Kunth) G.N. Jones (Turner et al. 2003).

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